



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/576,891

02/05/2007

Oliver Doerfel

710.1041

8124

23280 7590 06/30/2010
Davidson, Davidson & Kappel, LLC
485 7th Avenue
14th Floor
New York, NY 10018

EXAMINER

CADUGAN, ERICA E

ART UNIT

PAPER NUMBER

3726

MAIL DATE

DELIVERY MODE

06/30/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/576,891	Applicant(s) DOERFEL ET AL.	
	Examiner Erica E. Cadugan	Art Unit 3726	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 5-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 5-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>4/24/06, 8/6/08</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

1. In the information disclosure statement (IDS) submitted 4/24/2006, reference A05 was lined through because it was a duplicate citation. Specifically, A05 was a duplicate of cited reference A01 on the same IDS.

2. Additionally, in the IDS submitted 8/6/2008, references A01, A02, A03, A06, A07, and A09 have been lined through because they were already cited on the IDS of 4/24/2006.

Specification

3. The disclosure is objected to because of the following informalities:

The disclosure, in at least paragraph 0005, refers to the claims by number.

Applicant is required to amend the specification to remove these references and to incorporate into the disclosure the subject matter of these claims that is necessary to the understanding of the invention.

In paragraph 0021, it appears clear from the context that “ridged” is a typographical error, and should instead be “rigid”.

Appropriate correction is required.

4. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: the specification does not provide antecedent basis for each of the options set forth in claim 6. Claim 6 sets forth that the machine tools of different machining stations are identical in respect of their basic construction, “but differ from one another in respect of the

Art Unit: 3726

number and/or arrangement and/or dimensioning of the tool spindles contained therein”, which limitation does not currently have antecedent basis in the specification.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 5-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Where applicant acts as his or her own lexicographer to specifically define a term of a claim contrary to its ordinary meaning, the written description must clearly redefine the claim term and set forth the uncommon definition so as to put one reasonably skilled in the art on notice that the applicant intended to so redefine that claim term. *Process Control Corp. v. HydReclaim Corp.*, 190 F.3d 1350, 1357, 52 USPQ2d 1029, 1033 (Fed. Cir. 1999). The term “permanently” in claim 5 in the limitation “at least some of the tool spindles being equipped permanently with a tool” appears to be used by the claim to cause the limitation to mean “no tool change occurs on the at least some of the spindles during machining”, as best understood (see paragraphs 0006-0007, for example), while the accepted meaning of “permanently” would appear to cause this limitation to mean “no tool change is able to occur, ever, on the at least some of the tool spindles”. Such would appear to be unlikely in that machining tools break and/or undergo wear over their lifetime and must eventually be replaced, or else the entire spindle and tool combination would have to be replaced to replace a broken or worn tool, which it would appear would be generally cost prohibitive (as opposed to just replacing the worn or broken tool

Art Unit: 3726

bit). The term/limitation is indefinite because the specification does not clearly redefine the term (“permanently” or “permanently equipped”).

In claim 5, penultimate line, “the machine tool” lacks sufficient antecedent basis in the claim, noting that plural machine tools were previously set forth in the claim. Examiner suggests inserting “respective” between “the” and “machine” in the limitation “the machine tool” in claim 5, penultimate line.

In claim 5, penultimate line, “the machine tools fastened on them” lacks sufficient antecedent basis in the claim. Note that previously in the claim, the term “machine tool” was used to refer to the machine that operates a particular tool. Relating that to the specification, for example, 9 (shown in Figures 2-3) is a machine tool that operates a tool (such as 8) fastened thereto. Thus, note that as presently set forth, the claim sets forth that the machine tools (such as 9) have spindles 7, and that the machine tools (such as 9) are “fastened on” the spindles 7. In other words, presently, claim 5 sets forth that the machine tools 9 are fastened to themselves. Examiner suggests changing “tool” in claim 5, line 9, to “machining tool”, and then changing “the machine tools” in claim 5, penultimate line, to “the machining tools” for clarity. (Note that if Applicant merely changes “the machine tools” in claim 5, penultimate line, to “the tools”, such creates potential clarity issues with which “tools” are being referred to, i.e., the “machine tools” 9-13, or the “tools” 8.)

As presently set forth in claim 5, penultimate line, it is unclear to what “them” refers, i.e., the “machine tools”, or the “tool spindles”.

In claim 6, the use of plural “and/or” limitations within in a list renders it unclear which combination(s) of elements the claim is intended to encompass.

Art Unit: 3726

In claim 7, last line, "the tools" lacks sufficient antecedent basis in the claim. Note that both "at least some of the tool spindles being equipped with a tool" and "a plurality of machine tools" were previously set forth in the claim, and it is unclear to what "the tools" refers as claimed. See above suggestion re claim 5 and the language "machining tool" re specification elements 8, 8'.

In claim 8, "the machine" lacks sufficient antecedent basis in the claims. (Note: previously claimed are a "machining system", "machining stations", "machine tools", "tool spindles", and "tool", but no "machine").

Claim Rejections - 35 USC § 102/103

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 5-8, as best understood in light of the rejections under 35 USC 112 set forth above, are rejected under 35 U.S.C. 102(b) as being anticipated by, or in the alternative, are rejected under 35 USC 103 as being obvious over, the EHLA Maschinenbau brochure titled "Production Module FM 3+X, Minimal Non-Productive Time, No Tool Change Time, Chip-to-Chip Time 0.5-1.5 sec", dated August 2002 as per the last page thereof (which document was

Art Unit: 3726

provided by Applicant and appears to be an English -language version of document A13 cited by Applicant in the Information Disclosure Statement filed August 6, 2008, though it is noted that the document is 10 pages long, rather than the 6 pages noted on the IDS). It is noted that Examiner is citing the English version on a Notice of References cited to be clear that the document is of record, noting that document A13 cited by Applicant is the German language version.

The above article will be referred to hereinafter as “the brochure”.

The brochure teaches a machining system (shown in the right column of page 3, and on pages 7-8, for example). The machining system includes a plurality of machining “stations” to which a workpiece is fed. For example, any two adjacent ones of the spindles shown in the photograph at the top of page 7 can be considered to form a “machine tool” of a “machining station”, as broadly claimed, and any further two ones of these spindles can be considered to form a “machine tool” of a different “machining station”.

Note that the brochure teaches that the workpiece mounted to the bottom of the ram (shown in the drawing at the bottom of page 7) is movable in the shown x direction (via movement of the Z-axis guide body on the shown cross slide), in the vertical Y direction via movement of the ram within the shown Z-axis guide body, and in the Z direction (into the paper) via movement into the paper of the cross slide relative to the shown frame on the two (left and right with respect to the figure at the bottom of page 7) guide rails shown in the figure at the bottom of page 7. See the figure at the bottom of page 7, and see also page 4 under the heading “The Concept”, the second bullet, and also page 9, under the heading “Travel”, for example).

Art Unit: 3726

As shown in the figure at the bottom of page 7, for example, at that particular XZ cross section, there are two tool spindles located on the left, and two on the right (though there are further ones spaced along the sides of the working space as you proceed down the Y axis, as shown in at least the photograph at the top of page 7, and as also indicated by the indication that the bottom figure of page 7 shows a spindle "row" 1 at the top and a spindle "row" 2 at the bottom). (See also page 6, under the heading "[T]he Spindle Units", which teaches a modular system of up to 16 spindles.)

For example, as claimed, the top and bottom spindles on both the right and left sides of the figure at the bottom of page 7 can be considered to form one "machining station", and a further set of top and bottom spindles on both the right and left side that is spaced further along the Y axis (as shown in the photo on the top of page 7) can be considered to form a further "machining station". That said, as the workpiece is moved via movement of the cross slide relative to the frame (see the figure on the bottom of page 7 for these labeled elements) in the Y direction extending perpendicular to the paper with respect to the bottom figure of page 7, it is capable of being "fed sequentially" to these described "machining stations" that are spaced in the Y direction from one another.

Note that each of the "machining stations" described in the preceding paragraph includes four tool spindles (two on the right and two on the left, with respect to the figure at the bottom of page 7). The two spindles on the right can be considered to form one "machine tool", for example, as claimed, and the two spindles on the left (re the bottom figure of page 7) can be considered for form another "machine tool" as claimed.

Art Unit: 3726

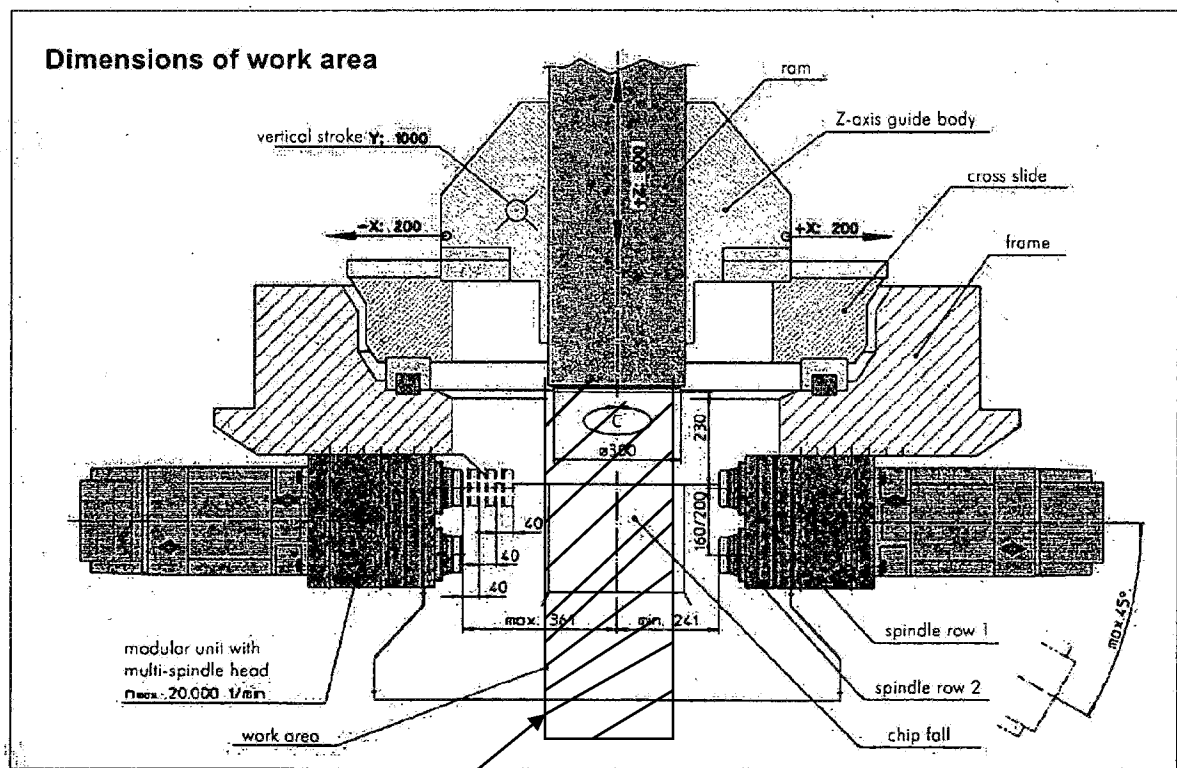
Noting the configuration of these “machine tools” shown in the figure at the bottom of page 7, these machine tools appear to be “identical” as claimed.

Alternatively, four spindles, i.e., a top and bottom spindle at a first Y-axis location on the right side of the figure at the bottom of page 7, plus a further top and bottom spindle at a second Y-axis location on the right side of the figure at the bottom of page 7, can be considered to form a “machining station”, with the one Y-axis location spindles constituting one “machine tool”, and the spindles at the second Y axis location constituting a further “machine tool”, which presents a different configuration of spindles of machine tools that are also shown in the photograph at the top of page 7 as being identical.

Re the limitation “at least some of the tool spindles being equipped permanently with a tool”, attention is directed to page 4, which, under the heading “The Conceptional Advantages”, teaches “[N]o tool change”.

Re the limitation in claim 5 “the at least some of the tool spindles being arranged in a working space of the machine tool so that the machine tools fastened on them come into engagement simultaneously...”, noting the interpretation wherein top and bottom right side (right with respect to the figure at the bottom of page 7) spindles at one Y-axis location constitute one machine tool (see paragraph above beginning “[A]lternatively, four spindles...”), note that the machining tools held on right side top and bottom spindles at one Y-axis location are capable of simultaneously engaging a workpiece held by the ram (see the figure at the bottom half of page 7). See the labeled reproduction of the figure at the bottom of page 7 below for a showing of an example of a workpiece configured such that it is capable of being engaged simultaneously by the top and bottom shown spindles.

(Note that the claim is an apparatus claim rather than a method claim, and that all that is necessary to meet the claim language is that the prior art be capable of performing the claimed function of simultaneously engaging the workpiece.)



Lines added by Examiner to show a sample of workpiece able to be engaged simultaneously by top and bottom spindles shown

Regarding the claimed intended use of “for cutting cylinder heads”, it is noted that the claims are directed to the machining system, and not to a method of machining cylinder heads. Note that a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the

Art Unit: 3726

claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. That said, the machining system taught by the brochure is considered to be capable of machining cylinder heads, noting that the tools are blind as to what workpiece they machine, i.e., the cutting tools will cut whatever workpiece they come into operative contact with, including a cylinder head, by virtue of the cutting edges or cutting portions of the tools, thus meeting the claim language.

Regarding the limitation in claim 5 “the cylinder heads to be machined in different orientations in the plurality of machining stations”, it is noted that there is no claim language indicating any particular structure of the machining system that facilitates or achieves these “different orientations”. Thus, broadly speaking, the machining system taught by the brochure is considered to be capable of machining the workpieces in the various described machining stations in “different orientations”, simply by an operator unclamping the workpiece, turning it, and reclamping it in a different orientation, in between machining operations at various stations.

Alternatively/additionally, note that as shown in the figure at the bottom of page 7, the workpiece held in the ram is rotatable in the C-axis direction (i.e., rotatable about the vertical Y axis), and thus for at least this additional/alternative reason, the system taught by the brochure is considered to meet this broad limitation, noting that thus, the brochure system is capable of presenting the workpiece held by the ram to a machining station in one “orientation”, then rotating the workpiece in the C-axis direction to present the workpiece to a different work station in a different orientation, such as, for example, an orientation rotated by 90 degrees (about the Y-axis) with respect to the first orientation.

Art Unit: 3726

Re claim 6, note that due to the "or" in the "and/or" limitations, it appears that only one of differences in "number", "arrangement", or "dimensioning" are necessary to meet the present claim language. That said, note that as broadly claimed, considering three of the multitude of spindles shown in the photograph at the top of page 7 (or of the up to 16 spindles taught on page 6, for example) to form a further "machine tool" as broadly claimed, three is a different "number" than two, and that the machine tools would still be "identical in respect of their basic construction", as broadly claimed (nothing the breadth of the term "basic construction"). Alternatively, as noted on page 9 under the heading "Work spindles", the spindles can be of a variety of diameters, thus meeting the different "dimensioning" limitation. (See also page 4, under the heading "The Concept", which teaches that "[E]ach tool has its own spindle optimally adjusted to the machining task with respect to size, rpm and drive power".)

Regarding claim 7, first off, it is noted that the "clamping device" is broadly set forth in the claim, e.g., the claim doesn't indicate what the clamping device is used for clamping. Note that an arrangement wherein some sort of clamping device was utilized to immovably fix the spindles such that relative movement was of the workpiece would meet the present claim language.

That said, however, the brochure does teach an arrangement wherein the spindles are immovably fixed, and all relative movements between the tools and the workpieces are via movement of the ram (which constitutes a "clamping device" in that it clamps the workpiece). See the arrangement at the bottom of page 7, noting the arrangements of the various guide arrangements shown (and described above) for permitting movements of the workpiece (relative to the stationary tools) in X, Y, and Z and in a rotational direction C. See also page 4, under the

Art Unit: 3726

heading "The Concept", which teaches "[D]ynamic 4-Axis-Unit, that grabs the work piece with the clamping device and performs all rapid and feed movements".

Re claim 8, note that claim 8 sets forth "wherein the machine is a motor vehicle cylinder head cutting machine", which merely serves to set forth a more specific intended use than the intended use previously set forth in independent claim 5. Again, it is noted that the claims are directed to the machining system, and not to a method of machining cylinder heads or a method of machining a motor vehicle cylinder head. Note that a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. That said, the machining system taught by the brochure is considered to be capable of machining motor vehicle cylinder heads, noting that the tools are blind as to what workpiece they machine, i.e., the cutting tools will cut whatever workpiece they come into operative contact with, including a "motor vehicle cylinder head", by virtue of the cutting edges or cutting portions of the tools, thus meeting the claim language.

In the alternative re the limitation in claim 5 of "at least one of the machining stations including a plurality of identical machine tools", in the event that it is considered that the brochure does not explicitly teach that the aforescribed machine tools (each formed by a plurality of spindles) are "identical", it is noted that the arrangement taught by the brochure is heavily customizable for different projects (see at least page 4, under the heading "The Machine-Specific Advantages", which teaches "Machine and project-specific equipment selected from a large and standardized modular system", and also at least page 6, which teaches, under the

Art Unit: 3726

heading "The Spindle Units", "a modular system of 1 to 16 Spindles, HSK 32 to HSK 100", for example, as well as page 9 which indicates that spindles can be selected from a variety of diameters, etc.)

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have configured their machining system with identical ones of the multiple choices of spindles that form the machine tools, particularly noting that such would merely involve the combination of prior art elements (i.e., identical ones of the spindle choices taught by the brochure) according to known methods (i.e., their placement in the system as taught by the brochure) to yield predictable results (i.e., the result of a system with identical spindles capable of performing machining operations on a workpiece, as opposed to a system with non-identical spindles capable of performing machining operations on a workpiece), which also amounts to such merely being the selection of one solution from a finite number of identified, predictable solutions (i.e., there are only two choices insofar as the spindles are either identical or they are non-identical), with reasonable expectation of success (since it matters not to the machining system whether the spindles are identical or not -- they'll function to machine a workpiece either way).

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. As a side note re the brochure relied upon in the above prior art rejections, it is noted that the interpretation(s) thereof discussed above are not the only interpretations of the reference that are applicable to the present claim language.

Art Unit: 3726

For example, alternatively, see the “two double modules configured as quadruple configuration” shown in the bottom half of page 8, noting that any one of the modules can be considered to constitute a “machining station” (as broadly claimed), with any two adjacent tool spindles therein forming a "machine tool", and any two other adjacent tool spindles therein forming another "machine tool".

Alternatively, the top double module in the “two double modules configured as a quadruple configuration” shown in the bottom half of page 8 can be considered a "machining station", and the bottom double module considered a further “machining station”, wherein one of the single modules within the double module (for example, the left top module within the top double module) can be considered a “machining station”, and the other of the single modules within the double module (for example, the right top module within the top double module) can be considered a further “machining station” as claimed. Noting that each machining station includes considerably more than 2 (or even more than 4; see the photograph at the top of page 7; see also page 9, which teaches that there can be from 1 to 12 spindles) spindles, such that within each machining station, groups of two of these tool spindles can be considered to each form a respective "machine tool" as broadly claimed.

11. These are but a few of the multitude of interpretations of the brochure that are applicable to the present claim language.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erica E. Cadugan whose telephone number is (571) 272-4474.

The examiner can normally be reached on Monday-Thursday, 5:30 a.m. to 4:00 p.m..

Art Unit: 3726

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David P. Bryant can be reached on (571) 272-4526. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Erica E Cadugan/
Primary Examiner
Art Unit 3726

eec
June 28, 2010